

September 6, 2002

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Mr. John Paul, Co-Chair
U.S. EPA Utility MACT Working Group
Permits/New Source Review/Air Toxics Subcommittee
Clean Air Act Advisory Committee
Washington, D.C.

Re: Industry Stakeholder Recommendations to EPA

The members of the “Industry Stakeholder Group” (list at end of this letter) of the Utility MACT Working Group offer the following recommendations to assist EPA in the development of hazardous air pollutant (HAP) regulations for oil- and coal-fired electric utility steam generators.

The “Industry Stakeholder Group” represents more than 95 percent of all coal-fired generation and all major coal producers in the U.S. The Group comprises a broad spectrum of interests related directly and indirectly to the generation of electricity in the U.S., including owners and operators of electric utility steam generating units from both the public and private sectors, fuel suppliers, labor unions, and others.

The following list summarizes the major issues to be addressed by EPA. The attached paper presents the rationale and specific details for these issues, including various options for consideration by the agency in implementing these recommendations. It also outlines additional information that EPA could provide to facilitate the Utility MACT Working Group’s consideration of the complex issues involved in this rulemaking.

Nothing expressed here or in the attached explanation of the Industry Stakeholder Group’s positions is intended to preclude individual parties from expressing their views on particular issues in more detail, as they may see fit.

HAPs To Be Regulated

Mercury only, since EPA’s authority under the MACT provisions of §§ 112(c) and (d) is limited to regulating mercury emissions from coal-fired plants.

Subcategorization

There should be subcategories for the source category of electric utility steam generating units. Fluidized bed combustion units should be in a separate category and IGCC units should be exempt. Conventional boilers must be subcategorized by coal rank (bituminous, subbituminous and lignite); other considerations could include process differences and coal chemistry for further subcategorization.

MACT Floors

MACT floors for subcategories must account for the inherent variability in mercury emissions from the best performing units. There are numerous methods for addressing variability, and more than one approach may be necessary to account for variability related to fuel and variability related to plant operations.

Beyond-the-Floor Regulation

There is currently no justification for regulation beyond the MACT floor.

New Units

No additional requirements beyond what is required to meet the MACT floor for existing units and satisfy NSPS requirements.

Format of Standard

Should be a choice between the least stringent of either a percent reduction standard (% mercury removed as difference between mercury in coal and mercury emitted from stack) or input-based emission rate (stack concentration in lb/TBTU) standard.

Compliance Monitoring Method

Compliance should be monitored using EPA Method 101A, since mercury CEMs will most likely not be commercially available, accurate, or reliable by the time that a mercury MACT rule is to be implemented. Title V permits will include compliance assurance monitoring (CAM) plans for periods between compliance tests. There should be an initial compliance demonstration followed by annual testing for large sources and biennial testing for small sources to demonstrate compliance with mercury MACT limits.

Compliance Unit

Compliance with MACT limits should be on a facility basis rather than on a boiler-by-boiler basis.

Compliance Time

The presumptive three-year compliance period contained in § 112(d) is too short to bring all coal-fired units into compliance with mercury MACT limits. Several practical concerns limit the ability to design, build and finance the pollution control equipment that would need to be installed or retrofitted for the entire electric utility industry to comply with a MACT standard in only three years.

Oil-Fired Plants

EPA has no jurisdiction to regulate nickel from oil-fired plants since specific health concerns associated with HAP emissions were not identified when EPA listed those units under § 112(c). EPA's database is inadequate to establish a MACT standard for this source category.

Additional Information from EPA

EPA should provide the Working Group with additional information, including IPM and REMSAD modeling results, additional analyses of statistical variability, and an analysis of the electric reliability implications of meeting MACT standards.

The “Industry Stakeholder Group” appreciates the opportunity to participate in the Working Group process and is pleased to submit these recommendations to EPA as the agency moves forward in drafting a proposed rule. We look forward to continuing to assist EPA as the rulemaking process progresses.

Industry Stakeholder Group

Working Group members

Cinergy
Class of 85 Regulatory Response Group
Edison Electric Institute
Latham & Watkins
National Mining Association
Seminole Electric Cooperative
Southern Company Generation
United Mine Workers
Utility Air Regulatory Group
West Associates

Other industry stakeholders

American Public Power Association
National Rural Electric Cooperative Association

EXPLANATION OF INDUSTRY STAKEHOLDER RECOMMENDATIONS TO EPA

HAPs To Be Regulated

EPA's authority under the MACT provisions of §§ 112(c) and (d) is limited to regulating mercury emissions from coal-fired plants. This limitation results from the unique way electric utility steam generating units are treated under § 112 of the Clean Air Act and in particular § 112(n)(1)(A). Section 112(n)(1)(A) requires EPA to study the hazards to public health reasonably anticipated to occur as a result of hazardous air pollutant (HAP) emissions from electric utility steam generating units. EPA is then to regulate as is "appropriate and necessary" to protect public health. EPA's decision to list coal- and oil-fired electric utility steam generating units under § 112(c) was based on a conclusion that mercury emissions from coal- and oil-fired power plants presented public health concerns. EPA did not identify public health concerns associated with the emissions of any other HAP. Thus, EPA's December 2000 listing decision must be viewed as only involving mercury emissions from coal-fired plants. EPA can regulate non-mercury HAPs only if it concludes that emissions of those HAPs pose an unacceptable risk to human health and further concludes that controlling those emissions will reduce human health risks to acceptable levels.

Even if EPA identifies health concerns associated with non-mercury HAPs, historical sampling data are insufficient either to characterize non-mercury HAP emissions from coal- or oil-fired units or to set MACT floors. Before EPA can regulate these compounds it must fill existing data gaps by collecting emissions data at a representative group of electric utility steam generating units using validated sampling and analytical methods. Suggestions for grouping non-mercury HAPs or designating "surrogate" compounds are therefore premature and inappropriate.

Subcategorization

The legislative history of the Clean Air Act makes clear that Congress intended EPA to distinguish among classes, types, and sizes of sources under three core circumstances: when differences among sources affect (1) the feasibility of air pollution control technology; (2) the effectiveness of air pollution control technology; and (3) the cost of control. Subcategorization is the primary mechanism that allows the agency to account for the fact that distinctions among classes, types and sizes of sources may have a very real impact on the feasibility of a given control technology, the effectiveness of that control technology, and the cost of control. EPA's past practices and case law support the use of this discretion.

The industry stakeholder group believes that the primary objective for subcategorization is to formulate a MACT standard that recognizes and allows for the continued use of the wide range of coals found in the U.S. There exists no one fuel in sufficient quantities and availability that can be used by all parties. The recommended subcategorization scheme outlined in the following paragraph, coupled with the flexibility of alternate standards (emission rate limit or percent reduction) would work to achieve this objective.

The source category of electric utility steam generating units must be subcategorized before MACT limits are set. Subcategorization is justified and required for a number of reasons. First, oil- and coal-fired units should be placed in different subcategories because the fuels are dissimilar and produce very different emissions. Second, for coal-fired units, fluidized bed combustion (FBC) units must be separated from conventional boilers because they employ a fundamentally different process for burning coal and they produce emissions with different mercury characteristics. (IGCC units do not fall within the source category because the coal gasification portion of an IGCC unit does not meet the definition of an electric utility steam generating unit.) Third, conventional boilers (pulverized coal, cyclones) must be subcategorized by the rank of coal burned (bituminous, subbituminous and lignite) because combustion of those coal ranks produces emissions with widely varying percentages of the three relevant species of

mercury (elemental, particulate and gaseous ionic). Fourth, process differences related to temperature can affect emission characteristics and justify further subcategorization. Fifth, coal chemistry (e.g., content of mercury, sulfur and chlorine) affects the species of mercury created during combustion and hence support further subcategorization.

MACT Floors

MACT floors for these subcategories must account for the inherent variability in mercury emissions from the best performing units and from the use of different types of fuel. There are numerous methods for addressing variability, including a correlation approach offered by UARG and a statistical approach presented by EPA. None of the methods that have been presented at the Working Group meetings fully accounts for all the variability in mercury emissions from a coal-fired plant. The approach offered by UARG addresses fuel variability by using correlations developed by EPRI from the Part III ICR data and then using these correlations and the coal data from 1999 for the best performing units to produce cumulative distributions of emissions for 1999 from those units. MACT floor levels in the following tables look at the performance of the best 12% of the plants tested in each category (or the average of the five best performing units for subcategories with less than 30 units) at the 95th percentile of each cumulative distribution. However, to fully understand the capabilities of the best performing plants, the MACT floor must consider both the fuel variability and variability from other causes such as sampling and monitoring, operational and plant to plant variability.

New Sources

Mercury reductions at all existing coal-fired power plants, including the “best” performing units, result from control equipment that was installed to reduce the emissions of other pollutants. New coal-fired power plants are subject to stringent regulation under a number of Clean Air Act provisions including new source performance standards (NSPS). These requirements cause new plants to install high efficiency particulate removal devices, scrubbing systems and NO_x reduction devices. These technologies are found on existing units that achieve the “best” mercury control. Additional control strategies that specifically address mercury, such as activated carbon injection, are developmental and are not commercially available. As a result, the MACT floor for new units should reflect the mercury control co-benefits of NSPS devices and should not be based on speculation about the potential capability of developmental technologies. The MACT floor for new units should reflect the same categories and be at least as stringent as the MACT floor for existing units and must address the variability in mercury emissions of the best performing units.

Beyond-the-Floor Regulation

Based on information in EPA’s Utility and Mercury Studies, it is unlikely that a case can be made for regulation beyond the MACT floor. The remaining mercury emissions from coal-fired power plants will be small and constitute a very small percentage of the overall mercury pool. Hence, further control will have little incremental effect on public health while the costs of achieving additional control will be very high.

Insufficient information has been presented to draw a definitive conclusion on whether regulation is needed beyond the MACT floor. Beyond-the-floor analyses require EPA to look at the cost of achieving more stringent emission reductions, any non-air quality health and environmental impact of further reductions, and energy requirements. Thus, EPA must complete (1) its IPM runs to assess the cost impacts of regulation, (2) its REMSAD (or equivalent) runs to understand mercury deposition and possible health effects, and (3) an assessment of the energy requirements of additional control. Moreover, because beyond-the-floor control technologies (e.g., activated carbon) are generally not commercially

available, EPA must carefully assess the cost and actual availability of those technologies. Only when this work is concluded, and made available for public comment, will EPA be in a position to make a reasoned decision on whether regulation is needed beyond the MACT floor.

Format of Standard and Compliance Monitoring Method

MACT standards should afford plants flexibility in demonstrating compliance with the emission limits. The MACT standard for electric utility steam generating units should specify both an emission rate limit and a percent reduction. Plants should be given the option of demonstrating compliance with either of these limits. The emissions rate limit should be based on heat input and not energy output. Sources already have a powerful incentive to maximize fuel efficiency because fuel costs account for over three quarters of variable production costs. In addition, regulations specifying output-based limits would become overly complex because of the many technical details that would have to be addressed. (Examples include the cogeneration of steam, common systems where multiple boiler feed one or more steam turbines, and the need for appropriate instrumentation.)

The mercury health concerns identified by EPA in its December 2000 listing decision are chronic in nature and not acute. Accordingly, short compliance averaging periods (e.g., hourly or daily) are unnecessary. In addition, the only currently approved method for sampling and analyzing total mercury is EPA's Method 101A—a cumbersome and labor-intensive sampling method. While work is ongoing to develop mercury CEMs, those efforts have yet to produce a validated instrument that can be reasonably maintained. Compliance should be monitored using EPA Method 101A. The Ontario Hydro method could be specified as an alternative compliance method, but the lack of need for speciation data suggests the choice of the simpler Method 101A.

The scheduling and performance of compliance testing should provide utilities sufficient flexibility to assure system reliability and economic dispatch of their systems. Title V permits will include compliance assurance monitoring (CAM) plans for periods between compliance tests. There should be an initial compliance demonstration followed by annual testing for large sources and biennial testing for small sources to demonstrate compliance with mercury MACT limits.

EPA should avoid assuming, as some Working Group members have suggested, that mercury CEMs will be available when compliance is required. EPRI projects indicate that insufficient progress has been made in the last few years with respect to mercury CEMs achieving the reliability and accuracy needed for compliance monitoring. EPRI and DOE continue to have their automated CEMs projects continuously staffed in order to achieve reasonably reliable results.

Compliance Unit

There is a precedent in other MACTs to require compliance on a facility basis. Therefore, compliance with MACT limits should be on a facility basis rather than on a boiler-by-boiler basis. A facility or unit-by-unit standard should result in the same amount of mercury being emitted by the facility. A facility-based limit would allow some flexibility in unit operation without any adverse impact on total emissions.

Compliance Time

The presumptive three-year compliance period contained in § 112(d) is too short to bring all coal-fired units into compliance with mercury MACT limits. The reasons why a three-year compliance period is too short are numerous, including: the amount of total electric generation affected by this rulemaking (some 325,000 MWe of capacity), the need to provide reliable electric service while mercury control retrofits are ongoing, the time needed to permit, assess, design, procure and install the equipment needed to meet the

MACT limit (for example, it will take more than three years to design, procure and install a scrubber, should that be the chosen control option), the availability of control equipment and raw materials (like activated carbon and baghouse bags), the limited supply of construction equipment and skilled craft labor to install mercury control equipment, and the time needed for start-up testing. Additionally, the installation of necessary mercury controls at coal-fired electric generating plants must be integrated with existing and new particulate, sulfur dioxide and nitrogen oxide controls over the next decade. EPA should conduct an analysis of the time needed for all utilities to comply with new MACT limits while maintaining a reliable electric supply in the United States.

Based on the above considerations, and particularly for those facilities that would be required to make major capital expenditures (e.g., installing a scrubber), it will take five years or more to bring all coal-fired electric utility steam generating units into compliance with a mercury MACT limit. The time for compliance could be even longer if more stringent MACT limits than those presented in the attached tables are imposed, as the technologies required for high levels of control are still under development.

Oil-Fired Plants

Similar to the discussion of non-mercury HAPs above, EPA did not identify specific health concerns associated with HAP emissions from oil-fired units when it listed those units under § 112(c). *See* 65 Fed. Reg. 79,830 col. 2 (Dec. 20, 2000). Until EPA identifies and factually supports specific public health concerns associated with the emission of a given HAP, the Agency does not have jurisdiction to regulate that HAP emission from oil-fired units. Further, EPA's limited database of 13 stack tests is inadequate to establish a MACT standard for a source category with 140+ units.

Additional Information from EPA

Industry members of the Working Group agree that additional information from U.S. EPA would facilitate understanding of the complex issues involved in the utility MACT standard-setting process. Additional information that should be provided to the Working Group includes, for example:

1. Further analyses of statistical variability as discussed in the August 8, 2002, memorandum from Jeffery Cole to William Maxwell;
2. Additional analyses of statistical variability taking into account variability reflected in the ICR coal data;
3. IPM modeling results for alternative MACT floors, including projected cost and coal market impacts;
4. REMSAD modeling results for alternative MACT floors; and
5. Analysis of the reliability implications of achieving alternative MACT floors.

Subcategorization Approach 1 - Coal Rank

Subcategory	Stack Limit, lb/10 ¹² Btu*	Overall Reduction
Bituminous	2.2	73%
Subbituminous	4.2	31%
Lignite	6.5	47%
FBCs	2.0	91%

Subcategorization Approach 2 - Coal Rank and Process

Subcategory	Stack Limit, lb/10 ¹² Btu*	Overall Reduction
Bituminous - Hot	3.7	55%
Bituminous - Sat.	2.2	63%
Bituminous - Wet	3.2	62%
Subbituminous	4.2	31%
Lignite	6.5	47%
FBCs	2.0	91%

* Limits include only a consideration of fuel variability and not other forms of variability.